

ICATION

(11) 1 225 781

DRAWINGS ATTACHED

1 225 781

- (21) Application No. 3133/67 (22) Filed 20 Jan. 1967
 (23) Complete Specification filed 19 April 1968
 (45) Complete Specification published 24 March 1971
 (51) International Classification F 24 h 1/04
 F 24 c 13/00
 (52) Index at acceptance
 F4W 46C



(54) IMPROVEMENTS IN AND RELATING TO GAS SPACE HEATERS

(71) I, GEORGE WOOD LAING, a British Subject, of 4, Chesser Avenue, Edinburgh 11, Scotland, do hereby declare the invention, for which I pray that a Patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an improved space heating appliance and in particular to an improved gas radiant heater which is adapted to heat water for space heating or other domestic uses.

According to the present invention, a gas heater comprises heat radiating elements of refractory material one or more pipes associated with the radiating elements and adapted to convey water in thermal contact with the radiating elements to extract thermal energy from the heater.

In the case of a conventional gas fire, the heat radiating elements are usually provided by suitably shaped pieces of refractory material supported in the flame from a gas burner and, in accordance with the invention, one or more water pipes would be associated with the refractory material so that when the gas fire is operating, in addition to radiant energy dissipated by the elements, water flowing through the pipes would be heated.

Where there are a plurality of pipes, the pipes may be connected in series (e.g. so that water enters the lowermost pipe and flows through progressively higher pipes until it leaves the appliance by the uppermost pipe), or alternatively the pipes may be connected in parallel so that the water makes just one pass through the heating means.

The pipe or pipes associated with the heat radiating elements may be connected directly to a water storage container or to a radiator.

If the pipes are totally enclosed by the refractory material the proportion of the

total thermal energy generated in the heat radiating elements which is transmitted to the water flowing through the pipe or pipes is determined by the thickness of thermally insulating material which surrounds each pipe. In practice, this thickness is chosen to give a suitably high proportion of radiated energy. With a gas appliance in accordance with this invention, the appliance can be made to operate completely conventionally, without danger of damaging the pipe or pipes, merely by draining the pipe or pipes of water.

If desired, a back boiler or auxiliary heating coil may be provided rearwardly of the heat radiating elements and a suitable trunking may be provided between the gas burners and the boiler or auxiliary coil, so that on tilting the burners from a normal operating position (in which the hot gases impinge on the heat radiating elements) to a rearwardly directed position, in which the hot combustion gases are directed away from the elements and pass along the trunking, thermal energy may be supplied to the back boiler or auxiliary heating coil. Such an arrangement clearly has the advantage that the appliance can be used for heating water, without dissipating radiant energy into the room.

The refractory pieces which form the heat radiating elements may be moulded with apertures therethrough (to accommodate the pipe or pipes) or they may be moulded *in situ* around a length of water piping.

It will be appreciated that an appliance in accordance with the present invention can have an external appearance identical with that of conventional appliances and that the incorporation of water pipes in the heating means can be arranged in such a way that it is quite undetectable to the casual observer. The provision of such pipes does however impart to the appliance the highly desirable facility that it can be used

[Price 25p]

to generate hot water for space heating or other domestic purposes.

The types of space heaters previously described could be provided with doors or other suitable means such as by a press-on heat resisting cover, to prevent radiant heat entering the room when hot water only is required.

The invention will now be described in greater detail, by way of example with reference to the accompanying drawing which shows a sectional side view of a gas radiant heater embodying the invention.

Referring to the drawing the gas heater embodying the invention comprises a plurality of pipes 1, heat radiating elements 2 of refractory material, a plurality of gas burners 3, and a back-boiler 4, all contained in a casing 5.

The pipes 1, pass through apertures in the refractory material of the elements 2. The pipes 1 are connected together in series by a U-piece 6 and lead for example to a storage tank (not shown) for domestic hot water and to a space-heating radiator (not shown). The back-boiler 4, which is provided rearwardly of the elements 2, is connected only to the storage tank.

The gas burners 3, are tiltable between a position as shown in the Figure in which they are directed vertically upwards and heat the elements 2 when the heater is in use, and a position (not shown) in which they are directed horizontally away from the elements and heat the back-boiler 4.

When the heater is in use with the burners in the position shown in the Figure, the elements glow and radiate heat forwardly into the adjoining space; also water conveyed in the pipes 1 is heated and extracts thermal energy from the elements 2; the hot water is then supplied to the storage tank and to the radiator; in this position of the

burners 3 the back-boiler 4 is not heated. When the burners 3 are in their other position they do not heat the elements 2 and heat is not radiated into the adjoining space thereby; in this position the back-boiler 4 is heated and supplies hot water to the storage tank only.

WHAT I CLAIM IS:—

1. A gas heater comprising heat radiating elements of refractory material, and one or more pipes associated with the radiating elements and adapted to convey water in thermal contact with the radiating elements to extract thermal energy from the heater.

2. A gas heater according to claim 1 comprising auxiliary means for containing water provided rearwardly of the heat radiating elements, and gas burners which are movable between a position in which they heat the radiating elements and the pipe or pipes when the heater is in use and a position in which they are directed away from the radiating elements and heat the auxiliary means when the heater is in use.

3. A gas heater according to claim 1 or 2 wherein a plurality of pipes are provided passing through the apertures in the refractory material and extending along the heater forwardly of the radiating elements, each pipe being adapted to convey water in thermal contact with the heat radiating elements to extract thermal energy from the heater.

4. A gas heater constructed, arranged and adapted to operate substantially as hereinbefore described with reference to the accompanying drawing.

J. Y. & G. W. JOHNSON,
Furnival House,
14-18, High Holborn,
London, W.C.1.
Chartered Patent Agents,
Agents for the Applicant.

1971

1,225,781

COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of
the Original on a reduced scale.

